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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/717,437

11/19/2003

Stephen A. Boppart

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EXAMINER

LAMPRECHT, JOEL

ART UNIT

PAPER NUMBER

3737

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DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/717,437	<b>Applicant(s)</b> BOPPART ET AL.	
	<b>Examiner</b> JOEL M. LAMPRECHT	<b>Art Unit</b> 3737	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 2/11/08.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-39 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-39 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                       | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>6/6/08, 4/1/08, 2/11/08</u> .                                 | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Drawings***

The drawings are objected to because the drawings filed 10/12/04 were not labeled "Replacement Sheet". Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Objections***

Claims 17, 18, 37 objected to because of the following informalities: Regarding claim 18, "modulator" lacks antecedent basis. Regarding claim 37 "innovation" should be "improvement". Regarding claim 17, "optics adapted to" does not imply an inherent

ability to provide the functional language which follows. Appropriate correction is required.

***Claim Rejections - 35 USC § 101***

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 38-39 rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. There is no inherent structure provided by “an image”.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 38-39 are rejected under 35 U.S.C. 102(b) as being anticipated by Izatt et al (US 6,002,480). Izatt et al disclose the formation of a superimposed digital image by using a digital data set converted into an image, which can use both coherent CARS and CRSRS photons from the reference and sample to form the image from the scattered photons (Col 30 Line 1-55, Col 19 Line 5 – Col 20 Line 60).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Izatt et al (US 6,002,480) in view of Faris (US 5,451,785). Izatt et al disclose a method for examining a sample comprising exposing a reference to a set of radiation to receive data from that reference (Col 5 Line 1-Col 6 Line 20), expose a sample to radiation to receive data from that sample (Col 6 Line 20 – Col 6 Line 50), interfering the received data which is of a different frequency than the transmitted radiation (Col 2 Line 35-65, Col 7 Line 55- Col 9 Line 65, Col 12 Line 16 – Col 16 Line 20, Col 18 Line 35- Col 19 Line 53, Col 10 Line 29 - Line 45)). The detection mechanisms detect the interfered photons which can be stokes or anti-stokes photons (Col 28 Line 5- Col 29 Line 50), the data sets are combined into an image (Col 6 Line 10-20), and the electromagnetic radiation the sample and reference are exposed to is within the frequency range of infra-red to ultraviolet light (Col 10 Line 29-33), and is done by optical coherence

tomography (Col 3 Line 20-55). The sample can be of a tissue inside a patient (Claim 7). The reference radiation is exposed to a reference before the interference with the sample radiation (Col 5 Line 50-Col 6 Line 20, Col 18 Line 35 – Col 20 Line 20), and the wavelengths of the collect radiation are different from that of the electromagnetic radiation that to which the sample is exposed (Col 19 Line 5-53, Col 2 Line 65- Col 3 Line 20, Col 7 Line 44- Col 8 line 60, Col 11 line 50 – Col 12 Line 55). At least a portion of the received radiation from the sample is of the same frequency as that of the reference and the sent electromagnetic radiations to both the reference and sample are phase-coherent (Col 28 Line 5 – Col 29 Line 50). Still further the device comprises an oscillator (pulsed pump laser) (Fig 5), a reference generator (Col 27 Line 5- Col 28 Line 4), illuminator (Col 27 Line 24 - Line 42), a demodulator coupled to the other devices (Col 26 Line 40 – Col 27 Line 4), a recording device (Col 5 Line 60- Col 6 line 20), and frequency-selecting elements to filter the light (Col 9 Line 60-Col 10 Line 45, Col 7 Line 50 – Col 8 Line 55). A scanner is also coupled to the device (Col 5 Line 50-Col 6 Line 20).

Although Izatt et al acknowledge that non-ideal mirrors will shift the frequency of a response at least some amount and the return frequency will therefore differ at least some from a true or ideal reflection (See Col 8 Line 45-55 and Col 7 Line 30-42) it is not the intention of Izatt et al to receive different frequency radiation from the reference. Therefore attention is paid to the secondary reference in the same area of endeavor by Faris which discloses the use of a scattered reference for the purpose of selectively gating portions of an imaging beam, using either a dichroic mirror, moving prism, and

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shifting delay times (Col 5 line 10 - Col 6 Line 20). Faris continues to use an interfering of reference and sample radiation and frequency mixing (Col 6 Line 19-65). It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the methods of Faris with those of Izatt et al for the purpose of forming the most accurate transilluminated images of a sample or patient (Abstract).

### ***Response to Arguments***

Applicant's arguments with respect to claims 1-39 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joel M. Lamprecht whose telephone number is (571) 272-3250. The examiner can normally be reached on Monday-Friday 7:30AM-4PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian L. Casler can be reached on (571)272-4956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ruth S. Smith/  
Primary Examiner, Art Unit 3737

JML  
9/22/07